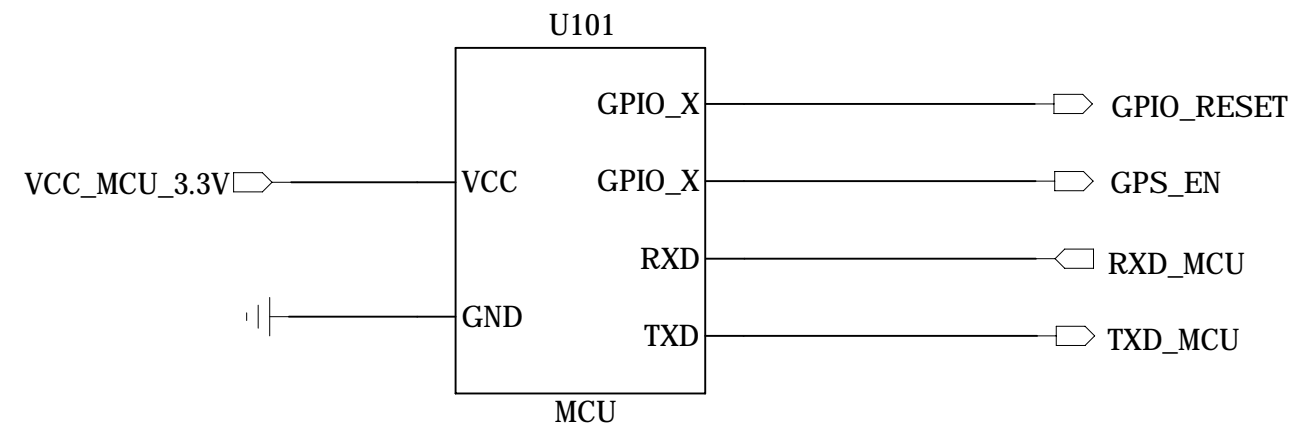
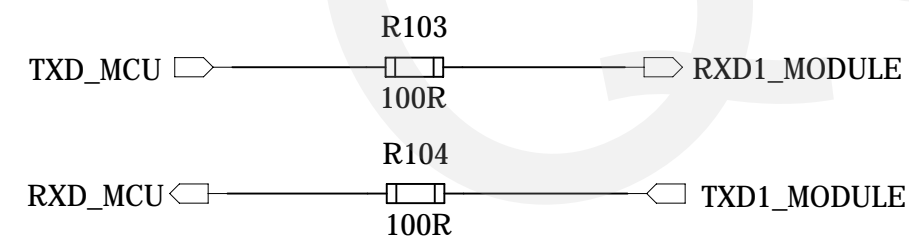


# Power Supply and UART Circuit

## Customer's MCU

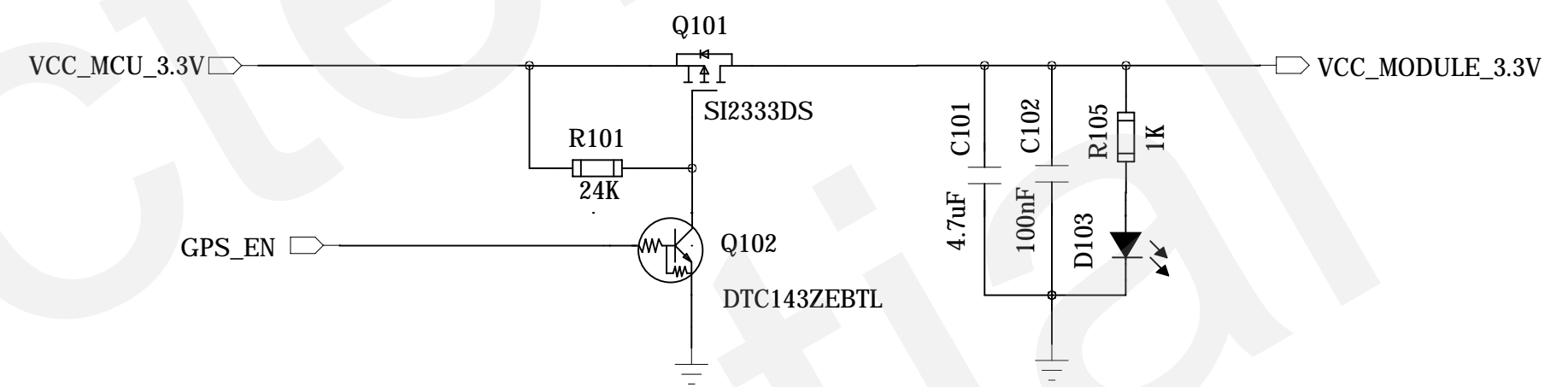


## UART Circuit



1. R103, R104 are reserved for debugging the waveform of UART, and they can prevent L80-R module from ESD interference.
2. In general, 100R for R103 and R104 is recommended, but 0R also works well.

## Power Management Circuit



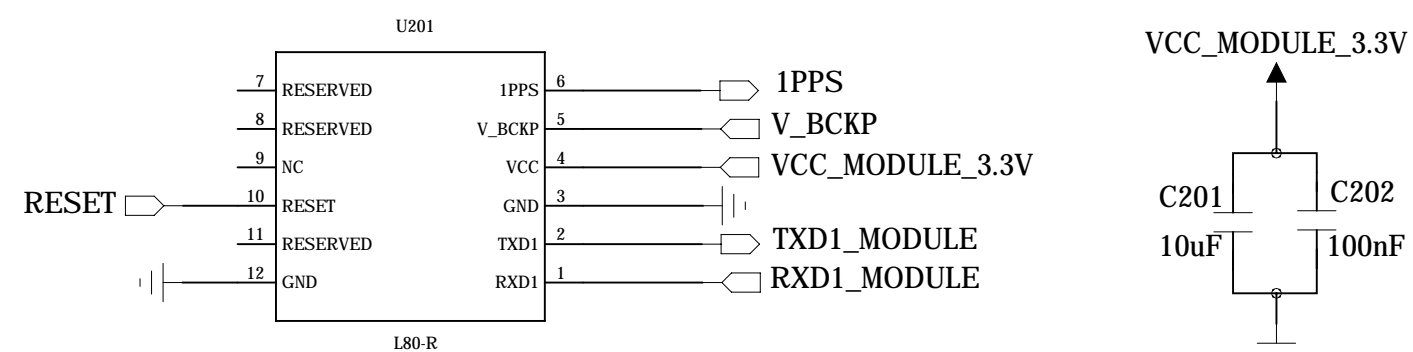
1. GPS\_EN can be used to control L80-R's main power on/off.
2. When V\_BCKP is supplied, keeping the GPS\_EN signal low will make L80-R module enter into backup mode and pulling the GPS\_EN signal to high is the only way to wake the module up.
3. For more details about power supply circuit, please refer to L80-R Hardware Design.

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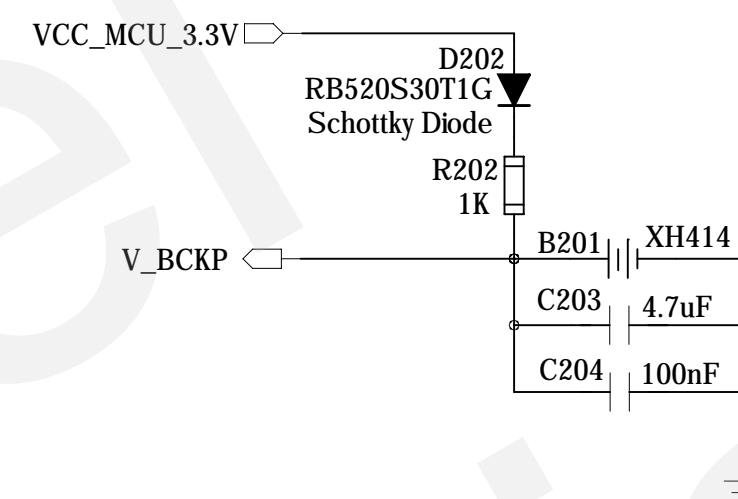
# Module Interface

## Module Interface



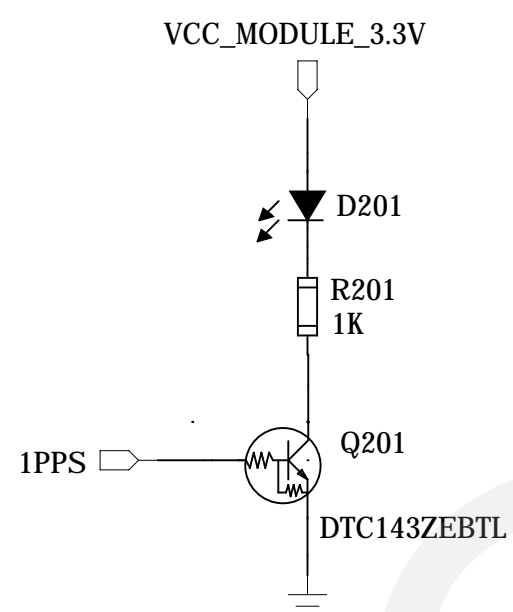
UART can be used to output NMEA message .

## Charging Circuit for RTC Domain



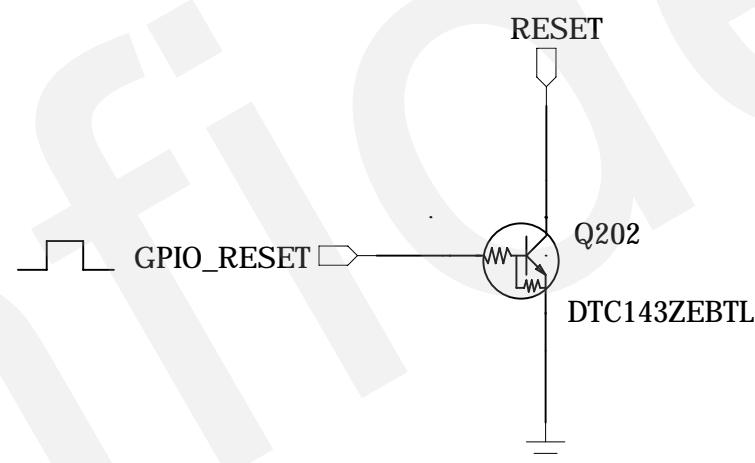
1. The V\_BCKP pin can be directly supplied by an external rechargeable battery.
2. Furthermore, it is necessary to add an external charging circuit for rechargeable battery.

## Indicating Circuit



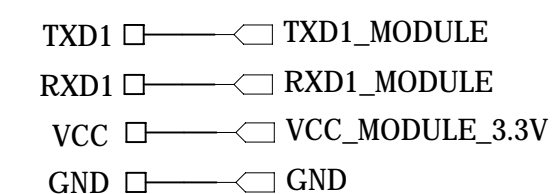
The 1PPS indicator will blink at 1Hz frequency after fixing the position.

## Reset Circuit



1. If the reset function is unused, the RESET pin can be connected to the VCC directly.
2. RESET has been pulled up internally.

## Test Points



The test points are reserved for debugging the GPS module.

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# L80-R Placement and Design Recommendations

1. Keep the module at least 10mm away from the nearest edge of the mother board, that is, it will be better to be placed in the center of the mother board.
2. Make ensure the antenna points to the sky.
3. Keep at least 30\*30mm integrated ground around the module (interfering vias is not allowed either).
4. Keep the patch antenna at least 10mm away from other tall metal components. Otherwise, the antenna performance will be affected.
5. Make sure the microcontroller, crystal, LCD, camera and other high speed components and interfaces are placed on the opposite side of the module, and keep them away from the module as far as possible, such as in diagonal position of the mother board.
6. Make sure interfering signals (USB, LCD, Camera, Crystal, etc.) are in inner layer of the mother board, and keep them and their vias far away from the module.
7. Make sure RF system such as BT/WIFI/GSM is on the opposite side of the module, and keep them away from the module as far as possible, such as in diagonal position of the board.
8. Keep DCDC far away from the module.
9. Device enclosure should be made of non-metal materials especially around antenna area. The minimum distance between antenna and enclosure is 1mm.
10. The RF part of GPS module is sensitive to temperature, please keep them away from heat-emitting circuit.
11. It is recommended to reserve an integrate ground layer to isolate GPS module from others.

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